

**THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Application of: **Zhisheng NIU, et al.**

Filed : **Concurrently Herewith**

For : **A TCP AWARE LOCAL RETRANSMISSION...**

Serial No. : **Concurrently Herewith**

August 16, 2001

Assistant Commissioner of Patents  
Washington, D.C. 20231

**PRELIMINARY AMENDMENT**

S I R:

Prior to the issuance of an Office Action, please amend the specification as follows:

**IN THE CLAIMS:**

3. (Amended) According to claim 1, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. The time-stamp of first local sequence number, mentioned above, is a fix length bit field. Along with delivered data packet increases, starting from 0 with 1 as step length its value increases sequentially.

4. (Amended) According to claim 1, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. During the whole delivery process from access point to terminal, the real delivery sequence is

uniquely determined by the time-stamp value of first local sequence number in TCP data packet.

5. (Amended) According to claim 1, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. The time-stamp of second local sequence number, mentioned above, is also a fix length bit field. It records the maximum value of time-stamp of first local sequence number among all the successfully received TCP data packets in the current terminal.

6. (Amended) According to claim 1, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. As mention above at access point of unreliable link, a lost data packet is detected according to the acknowledgement number (AN), the time-stamp of second local sequence number, both comes from received acknowledgement packet, and the time-stamp of first local sequence number, which is stored at the access point. Further more, detection is made for whether the data packet, which corresponds to the acknowledgement number (AN) of acknowledgement packet, is still in the access point of unreliable link, if it is, a comparison between two time-stamps is made. The comparison is between the time-stamp of first local sequence number in the data packet and the time-stamp of second local sequence number in the acknowledgement packet. If the time-stamp of first local sequence number is less than the time-stamp of second local

sequence number, the lost data packet is detected; then the time-stamp of first local sequence number at the LAC-PDU head is updated and the data packet is retransmitted. In addition, in the access point of unreliable link, the data packets, which time-stamp of first local sequence number is less than the acknowledgement number (AN), are all deleted.


### REMARKS

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

This amendment is being submitted to avoid multiple dependent claims.

Favorable consideration is respectfully requested.

Respectfully submitted



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS**

3. According to claim 1 ~~or~~ 2, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. The time-stamp of first local sequence number, mentioned above, is a fix length bit field. Along with delivered data packet increases, starting from 0 with 1 as step length its value increases sequentially.

4. According to claim 1 ~~or~~ 2, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. During the whole delivery process from access point to terminal, the real delivery sequence is uniquely determined by the time-stamp value of first local sequence number in TCP data packet.

5. According to claim 1 ~~or~~ 2, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. The time-stamp of second local sequence number, mentioned above, is also a fix length bit field. It records the maximum value of time-stamp of first local sequence number among all the successfully received TCP data packets in the current terminal.

6. According to claim 1 ~~or~~ 2, which mentions a TCP local retransmission scheme used in unreliable network, the characteristic is as follows. As mention above at access point of unreliable link, a lost data packet is detected according to the acknowledgement number (AN), the time-stamp of second local sequence number, both comes from received acknowledgement packet, and the time-stamp of first local sequence number, which is stored at the access point. Further more, detection is made for whether the data packet, which corresponds to the acknowledgement number (AN) of

acknowledgement packet, is still in the access point of unreliable link, if it is, a comparison between two time-stamps is made. The comparison is between the time-stamp of first local sequence number in the data packet and the time-stamp of second local sequence number in the acknowledgement packet. If the time-stamp of first local sequence number is less than the time-stamp of second local sequence number, the lost data packet is detected; then the time-stamp of first local sequence number at the LAC-PDU head is updated and the data packet is retransmitted. In addition, in the access point of unreliable link, the data packets, which time-stamp of first local sequence number is less than the acknowledgement number (AN), are all deleted.

